CLAIMS:

1. Method of visualizing a multi-dimensional data set, the method comprising the steps of: performing a segmentation of a structure in the data set; and performing a visualization of the data set; wherein a projection direction of the visualization is determined on the basis of the structure.

2. The method according to claim 1, wherein the visualization is performed on the basis of visualization parameters comprising the projection direction; wherein the visualization parameters are determined on the basis of at least one of the segmentation and a low-level analysis of the data set; and wherein the visualization parameters are selected from the group consisting of a relative position of the structure, a direction relative to the structure, a distance between the structure and an object of interest, a motion estimation, and a motion compensation.

3. The method according to claim 1, wherein the structure is one of a biopsy needle and an endoscope probe; wherein a first projection of the data set is performed in a direction of a longitudinal axis of the structure, resulting in a first image with an image surface area perpendicular to the direction of the longitudinal axis; and wherein a second projection of the data set is performed in a direction perpendicular to the longitudinal axis of the structure, resulting in a second image comprising the structure.

4. The method according to claim 3, wherein at least one of the visualization parameters is displayed during visualization of the data set.

5. The method according to claim 1, further comprising the step of: varying a rendering method in an image resulting from the visualization of the data set; wherein the variation of the rendering method causes a non-uniform quality of the image.

6. The method according to claim 5,wherein the variation of the rendering method comprises a variation of a sampling rate in the image; and wherein the variation of the rendering method is performed on the basis of the visualization parameters.

7. The method according to claim 1, wherein the segmentation is performed on the basis of one of a Hough Transform and a determination of active localizers.

8. The method according to claim 1, wherein the data set is acquired by means of one of an ultrasound imaging system, a CT imaging system, and an MR imaging system.

9. An image processing device for visualizing a multi-dimensional data set, the image processing device comprising: a memory for storing the data set; an image processor adapted for performing the following operation: loading the data set; performing a segmentation of a structure in the data set; and performing a visualization of the data set; wherein a projection direction of the visualization is determined on the basis of the structure.

10. The image processing device according to claim 9, wherein the structure is a biopsy needle; wherein the visualization is performed on the basis of visualization parameters; wherein the visualization parameters are determined on the basis of at least one of the segmentation and a low-level analysis of the data set; and wherein the visualization parameters are selected from the group consisting of a relative position of the structure, a direction relative to the structure, a distance between the structure and an object of interest, and a motion estimation, wherein a first projection of the data set is performed in a direction of a longitudinal axis of the biopsy needle, resulting in a first image with an image surface area perpendicular to the direction of the longitudinal axis; and wherein a second projection of the data set is performed in a direction perpendicular to the longitudinal axis of the biopsy needle, resulting in a second image comprising the biopsy needle.

11. An imaging system, comprising: a memory for storing a multi-dimensional data set; an image processor adapted for performing a visualization of the data set, wherein the image processor is adapted for performing the following operation:
loading the data set; performing a segmentation of a structure in the data set; and performing a visualization of the data set; wherein a projection direction of the visualization is determined on the basis of the structure.

12. The imaging system according to claim 11, wherein the structure is a biopsy needle; wherein the visualization is performed on the basis of visualization parameters; wherein the visualization parameters are determined on the basis of at least one of the segmentation and a low-level analysis of the data set; and wherein the visualization parameters are selected from the group consisting of a relative position of the structure, a direction relative to the structure, a distance between the structure and an object of interest, and a motion estimation, wherein a first projection of the data set is performed in a direction of a longitudinal axis of the biopsy needle, resulting in a first image with an image surface area perpendicular to the direction of the longitudinal axis; and wherein a second projection of the data set is performed in a direction perpendicular to the longitudinal axis of the biopsy needle, resulting in a second image comprising the biopsy needle.

13. The imaging system according to claim 11, wherein the imaging system is one of an MR imaging system, a CT imaging system, and an ultrasound imaging system.

14. A computer program for performing a visualization of a multi-dimensional data set, wherein the computer program causes an image processor to perform the following operation when the computer program is executed on the image processor: loading the data set; performing a segmentation of a structure in the data set; and performing a visualization of the data set; wherein a projection direction of the visualization is determined on the basis of the structure.